

State of California
AIR RESOURCES BOARD

Resolution 98-80

December 10, 1998

Agenda Item No.: 98-15-4

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (the Board) to adopt standards, rules and regulations and to do such acts as may be necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

WHEREAS, Health and Safety Code section 43018(a) directs the Board to endeavor to achieve the maximum degree of emission reduction possible from vehicular and other mobile sources in order to accomplish the attainment of the state ambient air quality standards at the earliest practicable date;

WHEREAS, Health and Safety Code section 43018(c) provides that in carrying out section 43018, the Board shall adopt standards and regulations which will result in the most cost-effective combination of control measures on all classes of motor vehicles and motor vehicle fuel, including but not limited to the specifications of vehicular fuel composition;

WHEREAS, Health and Safety Code section 43013 authorizes the Board to adopt and implement motor vehicle fuel specifications for the control of air contaminants and sources of air pollution which the Board has found to be necessary, cost-effective, and technologically feasible to carry out the purposes of Division 26 of the Health and Safety Code;

WHEREAS, as originally adopted in 1992, title 13, California Code of Regulations, section 2292.6 provided that liquefied petroleum gas (LPG) intended for use in motor vehicles in California must have a propylene (propene) content not exceeding ten volume percent for LPG sold or supplied between January 1, 1993 and December 31, 1994, and not exceeding five volume percent for LPG sold or supplied on or after January 1, 1995;

WHEREAS, due to the lack of reliable supplies of vehicular LPG having a propene content of five percent or less, the Board adopted in September 1994 a two-year extension of the interim ten percent limit on the propene content of vehicular LPG, through December 31, 1996;

WHEREAS, due to the lack of reliable supplies of sufficient quantities of vehicular LPG having a propene content of five percent or less, in March 1997, the Board adopted a second two-year extension of the interim ten percent limit on the propene content of vehicular LPG, through

December 31, 1998;

WHEREAS, while adopting the second two-year extension of the interim limit, the Board directed the staff to investigate the feasibility of alternative LPG specifications that would be acceptable in terms of emissions, supply, and the performance of engines using it;

WHEREAS, while adopting the second two-year extension of the interim limit, the Board stated its intent that, unless the staff could recommend an alternative to the 5.0 percent limit on the propene content, the limit should take effect on January 1, 1998, without further delays;

WHEREAS, the staff has proposed regulatory amendments that would revise the specifications for LPG intended for use in motor vehicles in California to (1) retain permanently the maximum propene limit of 10 volume percent, (2) raise to 5.0 the maximum limit on the combined contents of butanes, butenes, and heavier constituents, and (3) set a new limit of 0.5 volume percent on the combined contents of butenes and heavier constituents except butane;

WHEREAS, the staff, in consultation with parties who are subject to section 2292.6, parties who manufacture vehicles and engines using LPG, and parties who supply LPG that is used in engines, has directed emission tests on LPG that would satisfy the proposed amended specifications and is directing tests of the performance of that LPG in a late-technology LPG engine;

WHEREAS, the regulatory proposal would be effected by the amendment to title 13, California Code of Regulations, section 2292.6 set forth in Attachment A hereto;

WHEREAS, the California Environmental Quality Act and Board regulations require that no project which may have significant adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available to reduce or eliminate such impacts;

WHEREAS, the Board has considered the impact of the proposed amendment on the economy of the state;

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of Chapter 3.5 (commencing with section 11340), Part 1, Division 3, Title 2 of the Government Code;

WHEREAS, the Board finds that:

To ensure a continuing adequate supply of complying LPG for vehicles, it is necessary and appropriate to make permanent the current interim maximum limit of 10 volume percent on the propene content and to increase the maximum limit on the combined contents of butanes, butenes, and heavier constituents of LPG intended for use in motor vehicles;

To ensure that the increased allowed combined contents of butanes, butenes, and heavier constituents substantially consist only of butanes, it is necessary and appropriate to limit the combined contents of butenes and heavier constituents except butane to 0.5 volume percent;

The proposed amendment to section 2292.6 will not affect the State Implementation Plan (the SIP) because section 2292.6 is not part of the SIP;

The proposed amendments will not affect the creation or elimination of jobs within the State of California, the creation of new businesses or the elimination of existing businesses within California, the expansion of businesses currently doing business within California, or the ability of California businesses to compete with businesses in other states; and

The amendments approved herein will not have an adverse impact on the economy of the state;

WHEREAS, the Board further finds that:

Based on the extrapolation of the available vehicle emissions tests to the at-most 45,000 LPG-fueled on-road vehicle fleet statewide, and assuming the continuation of the current propene content of motor vehicle LPG, the originally proposed amendments would result in the loss of expected reductions in emissions in California of about 0.01 tons per day (tpd) non-methane hydrocarbons (reactivity-adjusted), 0.03 tpd oxides of nitrogen, and 0.15 tpd carbon monoxide;

Reducing the maximum allowable sulfur content of vehicular LPG from 120 parts per million by weight (ppmw) to 80 ppmw as recommended in the staff's suggested modifications is technologically feasible and could partially mitigate any adverse emissions impact from the proposed amendment pertaining to propene content;

There are no additional feasible mitigation measures or alternatives available to the Board that would substantially further reduce the potential adverse impacts of the approved amendments while at the same time ensuring that disruptions in the distribution of complying vehicular LPG will not occur;

On the basis of current experience with LPG having over five percent propene content and testing directed by the staff and others, the possible increases in the propene and butane contents under the proposed amended specifications are unlikely to have adverse effects on current or future LPG engines; and

The approved amendments that may result in the identified small losses of emission reductions are justified by the overriding need to avoid potential disruptions in the distribution of vehicular LPG, which disruptions could prompt current and potential future owners of LPG-powered vehicles to select gasoline- or diesel-powered vehicles instead.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves the amendments to section 2292.6, title 13, California Code of Regulations, as set forth in Attachment A hereto, with the modifications identified in Attachment B.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to incorporate into the approved amendments the modifications described in Attachment B hereto, with such other conforming modifications as may be appropriate, and then to adopt the modified amendments, after making the modified regulatory language available for public comment for a period of 15 days, provided that the Executive Officer shall consider such written comments regarding the modified text as may be submitted during this period, shall make modifications as may be appropriate in light of the comments received, and shall present the regulations to the Board for further consideration if he determines that this is warranted.

I hereby certify that the above is a true and correct copy of Resolution 98-80, as adopted by the Air Resources Board.

Pat Hutchens, Clerk of the Board

Resolution 98-80

December 11, 1998

Identification of Attachments to the Resolution

Attachment A: Proposed amendments to section 2292.6, title 13, California Code of Regulations, as set forth in Appendix 1 of the Staff Report.

Attachment B: Staff's Suggested Changes to the Original Proposal, distributed at the hearing on December 11, 1998.

Attachment B

PUBLIC HEARING TO CONSIDER AN AMENDMENT TO THE SPECIFICATIONS FOR LIQUEFIED PETROLEUM GAS INTENDED FOR USE IN MOTOR VEHICLES

Presented at the December 11, 1998 Public Hearing

Staff's Suggested Modifications to the Original Proposal

Note: the originally proposed amendments are shown in ~~strike-out~~ to indicate deletions and underline to indicate additions. The suggested modifications are shown in ***bold italicized*** ~~strikeout~~ to indicate deletions and double underline to indicate additions.

Amend section 2292.6, Title 13, California code of Regulations, to read as follows:

Section 2292.6 Specifications for Liquefied Petroleum Gas

The following standards apply to liquefied petroleum gas (the identified methods are incorporated herein by reference):

Specifications for Liquefied Petroleum Gas

Specification	Value	Test Method
Propane	85.0 vol. % (min.) a/	ASTM D 2163-87
Vapor Press. at 100° F	208 psig (max.)	ASTM D 1267-89 ASTM D 2598-88 b/
Volatility residue: evaporated temp., 95% or <u>butenes</u> , butanes, <i>butenes</i> , and heavier	-37° F (max.) 2.5 <u>5.0</u> vol. % (max.)	ASTM D 1837-86 <u>ASTM D 2163-87</u>
<u>Butenes</u> , pentanes , and heavier <u>excluding butane</u>	<u>0.5 vol.% (max.)</u>	<u>ASTM D 2163-87</u>
Propene	5.0 <u>10.0</u> vol. % (max.) c/	ASTM D 2163-87

Residual matter: residue on evap. of 100 ml oil stain observed.	0.05 ml (max.) pass d c/	ASTM D 2158-89 ASTM D 2158-89
Corrosion, copper strip	No. 1 (max.)	ASTM D 1838-89
Sulfur	<u>80</u> 120 ppmw (max.)	ASTM D 2784-89
Moisture content	pass	ASTM D 2713-86
Odorant	e d/	

- a/ Propane shall be required to be a minimum of 80.0 volume percent starting on January 1, 1993. Starting on January 1, 1997, the minimum propane content shall be 85.0 volume percent.
- b/ In case of dispute about the vapor pressure of a product, the value actually determined by Test Method ASTM D 1267-89 shall prevail over the value calculated by Practice ASTM D 2598-88.
- ~~c/ The propene shall be limited to 10.0 volume percent starting January 1, 1993. Starting January 1, 1997 1999, the propene limit shall be 5.0 volume percent.~~
- ~~d~~ c/ An acceptable product shall not yield a persistent oil ring when 0.3 ml of solvent residue mixture is added to a filter paper, in 0.1 ml increments and examined in daylight after 2 min. as described in Test Method ASTM 2158-89.
- e d/ The liquefied petroleum gas upon vaporization at ambient conditions must have a distinctive odor potent enough for its presence to be detected down to a concentration in air of not over 1/5 (one-fifth) of the lower limit of flammability.

Within five years from the effective date of adoption or implementation, whichever comes later, of the amendments approved December 11, 1998, the Air Resources Board, in consultation with the Secretary for Environmental Protection, shall review the provisions of this chapter to determine whether it should be retained, revised or repealed.